http://www.cas.org/support/stngen/stndoc/properties.html

=> s efaproxiral/cn

L1 1 EFAPROXIRAL/CN

=> d

THE ESTIMATED COST FOR THIS REQUEST IS 2.10 U.S. DOLLARS DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

- L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN
- RN 131179-95-8 REGISTRY
- ED Entered STN: 28 Dec 1990
- CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-methyl- (CA INDEX NAME)

OTHER NAMES:

- CN 2-[4-[[[(3,5-Dimethylphenyl)amino]carbonyl]methyl]phenoxy]-2-methylpropionic acid
- CN Efaproxiral
- CN RSR 13
- MF C20 H23 N O4
- CI COM
- SR CA
- LC STN Files: ADISINSIGHT, ADISNEWS, ANABSTR, BEILSTEIN*, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CHEMCATS, CIN, DDFU, DRUGU, EMBASE, IMSDRUGNEWS, IMSPATENTS, IMSRESEARCH, IPA, MEDLINE, MRCK*, PROMT, PROUSDDR, RTECS*, SYNTHLINE, TOXCENTER, USAN, USPAT2, USPATFULL (*File contains numerically searchable property data)

$$\begin{array}{c|c} & O & \\ & \\ \text{Me} & \\ \text{HO}_2\text{C} - \begin{array}{c} \\ \\ \text{C} \\ \end{array} \\ \text{Me} \end{array} \qquad \begin{array}{c} O & \\ \\ \\ \text{Me} \end{array}$$

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

- 110 REFERENCES IN FILE CA (1907 TO DATE)
- 2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
- 112 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> file caplus
COST IN U.S. DOLLARS

SINCE FILE TOTAL
ENTRY SESSION
8.09 8.31

FULL ESTIMATED COST

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FILE COVERS 1907 - 19 May 2010 VOL 152 ISS 21

FILE LAST UPDATED: 18 May 2010 (20100518/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

CAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

http://www.cas.org/legal/infopolicy.html

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L2
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                  (131179-95-8 (L) PREP/RL)
=> s 131179 - 95 - 8/pur
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L3
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        364953 ETHANOL
        208948 ACETONE
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L5
             5 L4 AND PY<2005
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1-5 IS NOT A RECOGNIZED COMMAND
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=> d 1-5 ibib abs hitstr

TOh 19/05/2010

"HELP COMMANDS" at an arrow prompt (=>).

The previous command name entered was not recognized by the system. For a list of commands available to you in the current file, enter

THE ESTIMATED COST FOR THIS REQUEST IS 29.05 U.S. DOLLARS DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

L5 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1995:758997 CAPLUS

DOCUMENT NUMBER: 124:55568

ORIGINAL REFERENCE NO.: 124:10501a,10504a

TITLE: Substituted 2-methyl-2-phenoxypropionic acid

derivatives as allosteric hemoglobin modifiers to

decrease oxygen affinity in blood

INVENTOR(S): Abraham, Donald J.; Mahran, Mona; Mehanna, Ahmed;

Randad, Ramnarayan; Joshi, Gajanan S.; Panikker,

Jayashree

PATENT ASSIGNEE(S): Center for Innovative Technology, USA

SOURCE: U.S., 24 pp. Cont.-in-part of U.S. 5,290,803.

CODEN: USXXAM

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 8

PATENT INFORMATION:

KIND	DATE	APPLICATION NO.	DATE
 A	19950711	US 1993-101501	19930730 <
A	19910917	US 1990-478848	19900212 <
A	19920616	US 1991-702947	19910520 <
A	19950117	US 1991-722382	19910626 <
A	19940301	US 1993-6246	19930119 <
A	19980324	US 1995-374206	19950118 <
A	19970107	US 1995-451658	19950530 <
A	19970715	US 1995-478372	19950607 <
A	19970826	US 1995-478108	19950607 <
A	19971014	US 1995-478371	19950607 <
A	19980106	US 1995-482808	19950607 <
A	19990727	US 1997-848485	19970508 <
A	19990216	US 1998-41595	19980313 <
		US 1990-478848	A2 19900212
		US 1990-623346	B1 19901207
		US 1991-702947	A2 19910520
		US 1991-722382	A2 19910626
		US 1993-6246	A2 19930119
		US 1992-885721	A1 19920518
		US 1993-101501	A2 19930730
		US 1993-127587	B1 19930928
		US 1995-374206	A3 19950118
		US 1995-478371	A3 19950607
	A A A A A A A A A	A 19950711 A 19910917 A 19920616 A 19950117 A 19940301 A 19980324 A 19970107 A 19970715 A 19970715 A 19970826 A 19971014 A 19980106 A 19990727	A 19950711 US 1993-101501 A 19910917 US 1990-478848 A 19920616 US 1991-702947 A 19950117 US 1991-722382 A 19940301 US 1993-6246 A 19980324 US 1995-374206 A 19970107 US 1995-451658 A 19970715 US 1995-478372 A 19970826 US 1995-478371 A 19980106 US 1995-482808 A 19990727 US 1995-482808 A 19990727 US 1997-848485 A 19990216 US 1998-41595 US 1990-478848 US 1990-623346 US 1991-702947 US 1991-702947 US 1991-722382 US 1993-6246 US 1993-101501 US 1993-127587 US 1995-374206

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT OTHER SOURCE(S): MARPAT 124:55568

AB A family of compds. R2XYZC6H4R1 where R2 is a substituted or unsubstituted aromatic compound, or a substituted or unsubstituted alkyl ring compound, or a substituted or unsubstituted phthalimide compound that incorporates X and Y where X is a carbonyl, Y is a nitrogen and R2 completes the phthalimide compound by being bonded to both X and Y, and where X, Y, and Z are CH2, NH, S, SO2, CO, O or N with the caveat that the X, Y, and Z moieties are each different from one another, and where R1 has the formula: OCR3R4CO2R5 where R1 can be connected to any position on the Ph ring, and R3 and R4

are hydrogen, halogen, Me, Et, Pr, iso-Pr, neopentyl, Bu, or substituted or unsubstituted aryl groups and these moieties may be the same or different, or alkyl moieties as part of an aliphatic ring connecting R3 and R4, and R5 is a hydrogen, halogen, C1-3 loweralkyl, or a salt cation, has been found to be useful for right-shifting Hb towards a low oxygen affinity state. The compds. are capable of acting on Hb in whole blood. In addition, the compds. can maintain the oxygen affinity in blood during storage and can restore the oxygen affinity of outdated blood. Thus, e.g., treatment of 4-HOC6H4CH2CO2H with SOC12 and 3,5-dichloroaniline afforded the intermediate 4-HOC6H4CH2CONHC6H3C12-3,5; O-alkylation of the latter with acetone/CHC13 afforded

 $4-(\mbox{HO2CCMe2O})\mbox{C6H4CH2CONHC6H3Cl2-3,5}$ which exhibited a P50 (mm Hg) of 87 for oxygen dissociation of normal Hb in intact human red blood cells vs. 27 for the red blood cells alone (P50 = the pressure when the scanned Hb sample is 50% saturated with oxygen).

IT 131179-95-8P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(substituted 2-methyl-2-phenoxypropionic acid derivs. as allosteric Hb modifiers to decrease oxygen affinity in blood)

RN 131179-95-8 CAPLUS

CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-methyl- (CA INDEX NAME)

$$\begin{array}{c|c} \text{Me} & \text{O} & \text{Me} \\ \text{HO}_2\text{C} - \text{C} - \text{O} & \text{Me} \end{array}$$

OS.CITING REF COUNT: 12 THERE ARE 12 CAPLUS RECORDS THAT CITE THIS

RECORD (16 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:495107 CAPLUS

DOCUMENT NUMBER: 119:95107

ORIGINAL REFERENCE NO.: 119:17137a,17140a

TITLE: Preparation of phenoxymethylpropionate derivatives as

allosteric hemoglobin modifiers to decrease oxygen

affinity in blood

INVENTOR(S): Abraham, Donald J.; Mahran, Mona; Mehanna, Ahmed;

Randad, Ramnarayan

PATENT ASSIGNEE(S): Center for Innovative Technology, USA

SOURCE: PCT Int. Appl., 67 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 8

PATENT INFORMATION:

PA	TENT NO.		KIND) DATE	APPLICATION NO.	DATE
WO	9220335 W: CA,		A1	19921126	WO 1992-US4229	19920519 <
	RW: AT,	BE, CH	, DE,	DK, ES, FR,	GB, GR, IT, LU, MC,	NL, SE
US	5122539		A	19920616	US 1991-702947	19910520 <
US	5248785		А	19930928	US 1992-885721	19920518 <
EP	585366		A1	19940309	EP 1992-912561	19920519 <
EP	585366		В1	20040428		
	R: AT.	BE. CF	DE.	DK, ES, FR,	GB, GR, IT, LI, LU,	MC. NL. SE
	,	,			,,,,	110, 111, 51
JP	07508973	22, 01			JP 1993-500270	
			T			
JP	07508973		T	19951005 20000321		19920519 <
JP CA	07508973 3023423		T B2 C	19951005 20000321	JP 1993-500270 CA 1992-2109575	19920519 < 19920519 <
JP CA AT	07508973 3023423 2109575		T B2 C	19951005 20000321 20000201	JP 1993-500270 CA 1992-2109575	19920519 < 19920519 < 19920519 <
JP CA AT	07508973 3023423 2109575 265208		T B2 C	19951005 20000321 20000201	JP 1993-500270 CA 1992-2109575 AT 1992-912561	19920519 < 19920519 < 19920519 < A 19910520
JP CA AT	07508973 3023423 2109575 265208		T B2 C	19951005 20000321 20000201	JP 1993-500270 CA 1992-2109575 AT 1992-912561 US 1991-702947	19920519 < 19920519 < 19920519 < A 19910520 A 19920518
JP CA AT	07508973 3023423 2109575 265208		T B2 C	19951005 20000321 20000201	JP 1993-500270 CA 1992-2109575 AT 1992-912561 US 1991-702947 US 1992-885721	19920519 < 19920519 < 19920519 < A 19910520 A 19920518 A2 19900212

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT OTHER SOURCE(S): MARPAT 119:95107

AB Title compds. I (R2-R6 = H, halo, (substituted) C1-3 alkyl, C1-3 alkyl ether or ester, alkyl moieties of aromatic or aliphatic ring incorporating 2 of R2-R6 site; R7, R8 = H, Me, Et, etc.; R9 = H, halo, (substituted) C1-3 alkyl, cation salt; X, Y, Z = CH2, CO, NH, O) are prepared as allosteric Hb modifiers to decrease O affinity in blood. 4-HOC6H4CH2CO2H was refluxed with excess SOC12, then reacted for 2 h with 3,5-C12C6H3NH2 to give after workup II, which showed a decrease in Hb-O affinity (i.e., increase in P50 value of 87 from control 19).

IT 131179-95-8P

RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of, for lowering oxygen affinity to Hb in blood)

RN 131179-95-8 CAPLUS

CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-

methyl- (CA INDEX NAME)

$$\begin{array}{c|c} \text{Me} & \text{Me} \\ \text{HO}_2\text{C}-\text{C}-\text{O} & \text{Me} \\ \text{Me} & \text{Me} \end{array}$$

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD

(5 CITINGS)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1993:45721 CAPLUS

DOCUMENT NUMBER: 118:45721

ORIGINAL REFERENCE NO.: 118:8119a,8122a

TITLE: Allosteric hemoglobin modifiers useful for decreasing

oxygen affinity and preserving oxygen carrying

capability of stored blood

INVENTOR(S): Abraham, Donald J.; Mahran, Mona; Mehanna, Ahmed;

Randad, Ramnarayan

PATENT ASSIGNEE(S): Center for Innovative Technology, USA

SOURCE: U.S., 20 pp. Cont.-in-part of U.S. 5,049,695.

CODEN: USXXAM

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 8

PATENT INFORMATION:

	CENT				KINI		DATE		AI	PLI	CAT	ION I	NO.		DA	TE	
US	5122 5049	539			 А А			0616 0917								910520 900212	
CA	2051	693			A1		1991	19910813 CA 1991-2051693					910206				
US	2051 5248	785			A	2005 1993		0928			_	920518					
WO	9220 W:	335 CA,			A1		1992	1126	WC) 19	92-	US42	29		19	920519	<
	5853	66			A1		1994	0309	GB, C							920519	<
		AT,	BE,	CH,	DE,	DK,	ES,	FR,	GB, C								
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-	2109 1236								C <i>i</i> Ei							920519 920519	
	1236 1236				A3 B1		2002 2004										
	R: 2608 2652	86			Т		2004	0315		20	02-	1278	1		19	MC 920519 920519	

EP	1468680			A2	20041020	EP	2004-9908		19920519	<
EP	1468680			АЗ	20050413					
	R: AT,	BE,	CH,	DE,	DK, ES, FR,	GB, GI	R, IT, LI, LU,	NL, SI	E, MC	
ES	2220857			Т3	20041216		2002-12781		19920519	<
ES	2223042			Т3	20050216	ES	1992-912561		19920519	
US	5250701			A	19931005	US	1993-6378		19930119	<
US	5290803			Α	19940301	US	1993-6246		19930119	<
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US	5731454			Α	19980324	US	1995-374206		19950118	<
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US	5648375			Α	19970715	US	1995-478372		19950607	<
US	5661182			A	19970826	US	1995-478108		19950607	<
US	5677330			Α	19971014	US	1995-478371		19950607	<
US	5705521			Α	19980106	US	1995-482808		19950607	<
US	5927283			A	19990727	US	1997-848485		19970508	<
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						US	1990-623346	A1	19901207	
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						US	1991-722382	A2	19910626	
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						EP	1992-912561	А3	19920519	
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						US	1995-374206	А3	19950118	
						US	1995-478371	А3	19950607	
7 0 0 7 0 1 1 4 1	TATE TITOES	DI DO	D 110	, ,,,,,,,			COLO DEODE NO E			

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT OTHER SOURCE(S): MARPAT 118:45721
GI

AB I (X,Y,Z = CH2, NH or O and R2-R6 = e.g., H, halo, substituted or unsubstituted C1-3 allyl, R7, R8 = H, Me or Et, R9 = H, alkyl, or metal salt) are prepared and have the ability to maintain oxygen affinity in blood during storage and can restore the O affinity of outdated blood. p-Acetaminophenol was treated with acetone and CHC13 in NaOH solution and the acetaminophenoxymethylpropionic acid obtained after acidification was hydrolyzed and later acylated with an acid chloride such as phenylacetyl chloride. The compds. showed O carrying properties of stored blood.

IT 131179-95-8P

RL: PREP (Preparation)

(preparation of, as allosteric \mbox{Hb} modifier for decreasing oxygen affinity

and preserving oxygen carrying properties)

RN 131179-95-8 CAPLUS

CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-methyl- (CA INDEX NAME)

 $\begin{array}{c|c} \text{Me} & \text{O} & \text{Me} \\ \text{HO}_2\text{C}-\text{C}-\text{O} & \text{Me} \end{array}$

OS.CITING REF COUNT: 24 THERE ARE 24 CAPLUS RECORDS THAT CITE THIS

RECORD (40 CITINGS)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1991:655817 CAPLUS

DOCUMENT NUMBER: 115:255817

ORIGINAL REFERENCE NO.: 115:43485a, 43488a

TITLE: Preparation of allosteric hemoglobin modifiers INVENTOR(S): Abraham, Donald J.; Mehanna, Ahmed; Randad,

Ramnarayan; Mahran, Mona

PATENT ASSIGNEE(S): Center for Innovative Technology, USA

SOURCE: PCT Int. Appl., 24 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 8

PATENT INFORMATION:

PA	TENT NO.			KIND	DATE	APPLICATION NO.		DATE
WO	9112235 W: CA,			A1	19910822	WO 1991-US833		19910206 <
	RW: AT,		CH,	DE,	DK, ES, FR,	GB, GR, IT, LU, NL,	SE	
US	5049695			A	19910917	US 1990-478848		19900212 <
CA	2051693			A1	19910813	CA 1991-2051693		19910206 <
CA	2051693			С	20050607			
EP	471811			A1	19920226	EP 1991-904612		19910206 <
EP	471811			В1	19951227			
	R: DE,	FR,	GB,	ΙT				
JP	04506812			Τ	19921126	JP 1991-504932		19910206 <
JP	3023422			В2	20000321			
PRIORITY	Y APPLN.	INFO	.:			US 1990-478848	A	19900212
						WO 1991-US833	W	19910206

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT OTHER SOURCE(S): CASREACT 115:255817; MARPAT 115:255817 GI

$$R^2$$
 R^1
 R^3
 R^4
 R^5
 R^5

AB Title modifiers I [R1 - R5 = H, halo, (substituted) C1-3 alkyl; R6, R7 = H, Me; X, Z = CH2, NH, O, with the proviso that when X is CH2, Z is NH, when X is NH, Z is either CH2 or O, and when X is O, Z is NH] are prepared NaOH was added to p-(AcNH)C6H4OH in acetone, followed by addition of CHC13, to give after acidification with HCl the appropriate (acetaminophenoxy)methylpropionic acid, which was treated with KOH to give 4-(H2N)C6H4OCMe2CO2H, which was dissolved with stirring in aqueous NaOH, and to this solution was added PhCH2COCl to give I (R1-R5 = H, R6 = R7 = Me, X = CH2, Z = NH) (II). The biol. activities of II and addnl. I are given.

I

IT 131179-95-8P

RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of, as allosteric Hb modifier)

RN 131179-95-8 CAPLUS

CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-methyl- (CA INDEX NAME)

$$\begin{array}{c|c} \text{Me} & \text{O} & \text{Me} \\ \text{HO}_2\text{C}-\text{C}-\text{O} & \text{Me} \end{array}$$

OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD

(12 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1991:81170 CAPLUS

DOCUMENT NUMBER: 114:81170

ORIGINAL REFERENCE NO.: 114:13837a, 13840a

TITLE: Allosteric modifiers of hemoglobin. 1. Design,

synthesis, testing, and structure-allosteric activity

relationship of novel hemoglobin oxygen affinity

decreasing agents

AUTHOR(S): Randad, Ramnarayan S.; Mahran, Mona A.; Mehanna, Ahmed

S.; Abraham, Donald J.

CORPORATE SOURCE: Dep. Med. Chem., Virginia Common. Univ., Richmond, VA,

23298-0581, USA

SOURCE: Journal of Medicinal Chemistry (1991),

34(2), 752-7

CODEN: JMCMAR; ISSN: 0022-2623

10/923,271

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 114:81170

GΙ

AB Three isomeric series of 2-aryloxy-2-methylpropionic acids I (R = R1CH2CONH, R1CONHCH2, R1NHCOCH2; R1 = Ph, substituted phenyl) were prepared and studied for their ability to decrease the oxygen affinity of human Hb A. Structure-activity relationships are presented. Several of the new compds. were strong allosteric effectors of Hb. The two most active compds. are I (R = 3,5-R22C6H3NHCOCH2; R2 = C1, Me) (II). Compared to other known potent allosteric effectors, II show greater activity. II also exhibit a right shift in the oxygen equilibrium curve when incubated with whole blood.

IT 131179-95-8P

RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of, as allosteric effector of Hb)

RN 131179-95-8 CAPLUS

CN Propanoic acid, 2-[4-[2-[(3,5-dimethylphenyl)amino]-2-oxoethyl]phenoxy]-2-methyl- (CA INDEX NAME)

$$\begin{array}{c|c} \text{Me} & \text{O} & \text{Me} \\ \text{HO}_2\text{C}-\text{C}-\text{O} & \text{Me} \end{array}$$

OS.CITING REF COUNT: 44 THERE ARE 44 CAPLUS RECORDS THAT CITE THIS RECORD (45 CITINGS)

=>

TOh

19/05/2010